

What is claimed is:

1. An isolated mammalian receptor which specifically binds a high density lipoprotein holoparticle, comprising a subunit of approximately 450-600 kDa molecular weight and one or more subunits selected from the group consisting of a subunit of approximately 40-50 kDa molecular weight, a subunit of approximately 120 kDa molecular weight and a subunit of approximately 400 kDa molecular weight.

2. An isolated mammalian receptor which specifically binds a high density lipoprotein holoparticle, comprising a subunit of approximately 800 kDa molecular weight and one or more subunits selected from the group consisting of a subunit of approximately 40-50 kDa molecular weight, a subunit of approximately 120 kDa molecular weight and a subunit of approximately 400 kDa molecular weight.

3. An isolated mammalian receptor which specifically binds a high density lipoprotein holoparticle, comprising a subunit of approximately 400 kDa molecular weight and one or more subunits selected from the group consisting of a subunit of approximately 40-50 kDa molecular weight and a subunit of approximately 120 kDa molecular weight.

4. An isolated mammalian receptor which specifically binds a high density lipoprotein holoparticle, comprising a subunit of approximately 120 kDa molecular weight and a subunit of approximately 40-50 kDa molecular weight.

5. A composition comprising the receptor of any of claims 1 through 4, bound to an HDL particle.

6. The receptor of any of claims 1 through 4, wherein the receptor is from a mouse.

7. The receptor of claim 6, wherein the receptor is from an F9 teratocarcinoma cell having ATCC accession number CRL-1720.

8. The receptor of any of claims 1-4 wherein the receptor is from a human.
9. The receptor of claim 8, wherein the receptor is from a cell selected from the group consisting of kidney, liver, intestine, yolk sac endoderm, brain ependyma, choroid plexus and placenta cells.
10. A nucleic acid construct comprising nucleic acids encoding the subunits of the receptor of any of claims 1 through 4.
11. An isolated nucleic acid which selectively hybridizes with the nucleic acid of claim 10 under stringent hybridization conditions.
12. A vector comprising the nucleic acid of claim 10.
13. A cell comprising the vector of claim 12.
14. A cell expressing the nucleic acid of claim 10 whereby a functional protein is produced and expressed on the surface of the cell.
15. A cell expressing the nucleic acid of the vector of claim 12 whereby a functional protein is produced and expressed on the surface of the cell.
16. A modified cell of a type which normally produces the functional HDL receptor of any of claims 1 through 4, wherein a functional HDL receptor is not produced in the cell.
17. The cell of any of claims 14 through 16, wherein the cell is in a transgenic animal.
18. An isolated polypeptide which specifically binds a high density lipoprotein holoparticle and having a molecular weight of approximately 40-50 kDa.

19. An isolated polypeptide which specifically binds a high density lipoprotein holoparticle and having a molecular weight of approximately 120 kDa.
20. An isolated polypeptide which specifically binds a high density lipoprotein holoparticle and having a molecular weight of approximately 400 kDa.
21. A composition comprising the polypeptide of any of claims 18 through 20, bound to an HDL holoparticle.
22. An isolated nucleic acid encoding the polypeptide of any of claims 18 through 20.
23. An isolated nucleic acid which selectively hybridizes with the nucleic acid of claim 22.
24. A vector comprising the nucleic acid of claim 22.
25. A cell comprising the vector of claim 24.
26. A cell expressing the nucleic acid of 22 whereby a functional protein is produced and expressed on the surface of the cell.
27. A cell expressing the vector of claim 24 whereby a functional protein is produced and expressed on the surface of the cell.
28. A modified cell of a type which normally produces the polypeptide of any of claims 18 through 20 in a functional form, wherein the cell does not produce the polypeptide of any of claims 18 through 20 in a functional form.
29. The cell of any of claims 26 through 28, wherein the cell is in a transgenic animal.

30. A method of screening a substance for the ability to modulate the HDL holoparticle binding and/or internalization activity of the receptor of any of claims 1 through 4, comprising:

a) contacting the substance with a cell producing a functional HDL receptor; and

b) assaying the cell for a modulation of the HDL holoparticle binding and/or internalization activity of the receptor, whereby a modulation of the HDL holoparticle binding and/or internalization activity of the receptor identifies a substance with the ability to modulate the HDL holoparticle binding and/or internalization activity of the HDL receptor.

31. The method of claim 30, wherein the assay for modulation of the HDL holoparticle binding and/or internalization activity of the receptor is selected from the group consisting of an HDL holoparticle receptor binding assay, an HDL holoparticle internalization assay; an HDL holoparticle degradation assay, an assay which detects modulation in the HDL holoparticle binding and/or internalization activity of the receptor as a result of a decrease or increase in the amount of HDL receptor-encoding mRNA produced by a cell, an assay which detects modulation in the HDL holoparticle binding and/or internalization activity of the receptor as a result of an increase or decrease in the amount of functional HDL receptor protein produced by a cell and a receptor recycling assay.

32. The method of claim 31, wherein the cell producing the functional HDL receptor is an F9 cell.

33. A method of screening a substance for the ability to modulate the HDL holoparticle binding and/or internalization activity of the polypeptide of any of claims 18 through 20, comprising:

a) contacting the substance with a cell producing a functional polypeptide; and

b) assaying the cell for a modulation of the HDL holoparticle binding and/or internalization activity of the polypeptide, whereby a modulation of the HDL holoparticle binding and/or internalization activity of the polypeptide identifies a

substance with the ability to modulate the HDL holoparticle binding and/or internalization activity of the polypeptide of any of claims 18 through 20.

34. The method of claim 33, wherein the assay for modulation of the HDL holoparticle binding and/or internalization activity of the polypeptide is selected from the group consisting of an HDL holoparticle polypeptide binding assay, an HDL holoparticle internalization assay; an HDL holoparticle degradation assay, an assay which detects modulation in the HDL holoparticle binding and/or internalization activity of the polypeptide as a result of a decrease or increase in the amount of HDL binding polypeptide-encoding mRNA produced by a cell, an assay which detects modulation in the HDL holoparticle binding and/or internalization activity of the polypeptide as a result of an increase or decrease in the amount of functional HDL binding polypeptide produced by a cell and a polypeptide recycling assay.

TO: 09/09/99 09:09:09